72~~71~~. The composition of claim ~~69~~ 70 wherein the heterologuos peptide comprises a histidine tag.

B1 73~~72~~. The composition of claim ~~69~~ 70 wherein the heterologus peptide comprises a leucine zipper.

74~~73~~. The composition of claim ~~69~~ 70 wherein the heterologous peptide comprises a fusion protein.

RESPONSE

I. Status of the Claims/ Amendments

Claims 12, 13, 35-42 and 45-67 have been cancelled without prejudice and in sole response to the examiner's Restriction Requirement. A marked-up version of the original set of claims is included with the present response. Applicant also includes a clean copy version of the claims as amended.

Applicant has added depended claims 68-73. Dependent claim 68 further defines the composition of claim 1 as comprising a carrier. Support for this claim is in the Specification, page 5, lines 1-2. Dependent claim 69 further defines the substantially purified thermostable Gux 1 peptide of the composition as a heterologous peptide or protein (See Specification, pg. 4, line 21-22). The protein or peptide of the Gux I peptide is also further defined as comprising an immunoglobulin (Specification, pg. 9, line 26-27), a histidine tag (Specification, pg.9, line 27), a leucine zipper (Specification, page 9, line 27), or a fusion protein (Claims 70-73; Specification, page 4, line 20-21; pg. 9, line 18-26). The subject matter in these dependent claims is fully supported in the Specification at the passages noted. No new matter has been included with the added claims. No additional fees are due in conjunction with the filing of these claims, as claims 12, 13, 35-42 and 47-67 are now cancelled.

Claims 1-11, 14-34 and 43-44, and 68-73 are currently pending in the present application.

II. Restriction Requirement

The Examiner has characterized the claims originally filed in this application into the following eight (8) inventions:

Invention 1- Claims 1-11, 14-34 and 43-44. (drawn to a composition comprising thermostable Gux 1 polypeptide, (classified in class 435, subclass 200));

Invention 2 - Claims 12-13 (drawn to an industrial detergent mixture, classified in class 510, subclass 114);

Invention 3 - Claim 35 (drawn to cellulose-substrate complex, classified in class 536, subclass 1.11);

Invention 4 - Claims 36-42 and 48-56 (drawn to vectors, host cells and method of making, classified in class 435, subclass 6);

Invention 5 - Claims 45-47 (drawn to an antibody, classified in class 530, subclass 387.1);

Invention 6 - Claim 57 (drawn to a method of detection of polynucleotide, classified in class 435, subclass 6);

Invention 7 - Claims 58-62 (drawn to a method of assessing carbohydrate degradation, classified in class 536, subclass 124);

Invention 8 - Claims 63-67 (drawn to a method of reducing cellulose in a starting material, classified in class 435, subclass 4).

The claims 1-11, 14-34 and 43-44 have been elected at this time. The non-selected claims are cancelled without prejudice in response to the Restriction Requirement. Applicant intends to pursue the subject matter of the non-elected claims will full priority of the claims elected at this time.

Applicant submits that claims 12-13 should be included with the claim group characterized as Invention 1. The industrial mixture of claims 12-13 comprises the Gux 1 polypeptide of claim 1. Therefore, it is submitted that these claims should have been included within Group 1.

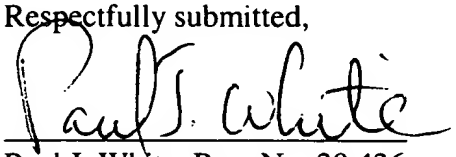
However, in the interest of expediting the prosecution of the present case to allowance, Applicant has made an election in response to the restriction requirement set forth in the Office Action.

III. Conclusion

The present paper is submitted as a complete response to the Examiners Action mailed July 3, 2002. No request for extension of time is deemed necessary, as the present paper is being filed prior to the expiration of the period to respond on August 3, 2002.

Applicant submits that the present paper places the case in even further condition for allowance. Should the Examiner have any questions or comments that would expedite the prosecution of the case to allowance, Applicants' undersigned representative earnestly requests a telephone call.

Respectfully submitted,



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Dated: August 2, 2002.

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Clean set of claims for 09/917,384

We claim:

1. A composition comprising a substantially purified thermostable Gux1 peptide, said Gux1 peptide comprising a catalytic domain GH48, a carbohydrate binding domain (CBD) type III, and a carbohydrate binding domain (CBD) type II.

2. The composition of claim 1 wherein the Gux1 peptide is further defined as comprising a linker and a signal peptide.

3. The composition of claim 1 or 2 wherein the GH48 catalytic domain of the Gux1 peptide is further defined as having a length of about 637 to about 643 amino acids.

4. The composition of claim 1, 2, or 3 wherein the carbohydrate binding domain (CBD) type III of the Gux1 peptide is further defined as having a length of about 150 to about 156 amino acids.

5. The composition of claim 1, 2, 3, or 4 wherein the carbohydrate binding domain (CBD) type II of the Gux1 peptide is further defined as having a length of about 95 amino acids to about 105 amino acids in length.

6. The composition of claim 3 wherein the GH48 catalytic domain is further defined as the sequence of SEQ ID NO: 5.

7. The composition of claim 4 wherein the carbohydrate binding domain (CBD) type III is further defined as the sequence of SEQ ID NO: 4.

8. The composition of claim 6 wherein the carbohydrate binding domain (CBD) type II is further defined as the sequence of SEQ ID NO:7.

9. The composition of claim 1 further defined as comprising a sequence of SEQ ID NO: 4, SEQ ID NO: 5, and SEQ ID NO: 7.

10. A thermal tolerant Gux1 peptide having a sequence of SEQ ID NO: 1.

11. The Gux1 peptide of claim 10 further defined as having a sequence of SEQ ID NO: 2.

14. The composition of claim 1 wherein the Gux1 is further defined as comprising a nucleic acid sequence having at least 90% sequence identity to the nucleic acid sequence encoding an amino acid sequence of SEQ ID NO: 5.

15. The composition of claim 1 wherein the Gux1 is further defined as comprising a nucleic acid sequence having at least 80% sequence identity to the nucleic acid sequence encoding an amino acid sequence of SEQ ID NO: 5.

16. The composition of claim 1 wherein the Gux1 is further defined as comprising a nucleic acid sequence having at least 70% sequence identity to the nucleic acid sequence encoding an amino acid sequence of SEQ ID NO: 5.

17. The composition of claim 1 wherein the Gux1 is further defined as comprising a nucleic acid sequence having at least 90% sequence identity to the nucleic acid sequence encoding the amino acid sequence of SEQ ID NO: 7.

18. The composition of claim 1 wherein the Gux1 is further defined as comprising a nucleic acid sequence having at least 90% sequence identity to the nucleic acid sequence encoding the amino acid sequence of SEQ ID NO: 4.

19. The composition of claim 1 wherein the Gux1 is further defined as comprising a nucleic acid sequence having at least 90% sequence identity to the nucleic acid sequence encoding the amino acid sequence of SEQ ID NO: 6.

20. The composition of claim 1 wherein the Gux1 is further defined as comprising a nucleic acid sequence having at least 90% sequence identity to the nucleic acid sequence encoding the amino acid sequence of SEQ ID NO: 1.

21. The composition of claim 1 wherein the Gux1 is further defined as comprising a nucleic acid sequence having at least 90% identity to the nucleic acid sequence of SEQ ID NO: 2.

22. The composition of claim 1 wherein the Gux1 is further defined as comprising a nucleic acid sequence encoding a heterologous protein in frame with the Gux1 peptide of claim 1.

23. The composition of claim 22 wherein the heterologous protein in frame with the Gux1 peptide of claim 1 is further defined as a peptide tag.

24. The composition of claim 23 wherein the peptide tag is 6-His, thioredoxin, hemaglutinin, GST, or OmpA signal sequence tag.

24. The composition of claim 22 wherein the heterologous protein is a substrate targeting moiety.

25. The composition of claim 13 wherein the nucleotide sequence encoding the Gux1 is operably linked to a transcriptional or translational regulatory sequence.

26. The composition of claim 25, wherein the transcriptional or translational regulatory sequence comprises a transcriptional promoter or enhancer.

27. An isolated polypeptide molecule comprising:

a) a sequence of SEQ ID NO: 4;

b) a sequence of SEQ ID NO: 5;

c) a sequence of SEQ ID NO: 6;

d) a sequence of SEQ ID NO: 7;

e) a sequence of SEQ ID NO: 1; or

f) an amino acid sequence having at least 70% sequence identity with the amino acid sequence of a), b), c), d), or e).

28. The polypeptide molecule of claim 27, having at least 90% sequence identity with the amino acid sequence of a), b), c), d), or e).

29. A fusion protein comprising the polypeptide of claim 27 and a heterologous peptide.

30. The fusion protein of claim 29, wherein the heterologous peptide is a substrate targeting moiety.

31. The fusion protein of claim 29, wherein the heterologous peptide is a peptide tag.

32. The fusion protein of claim 31, wherein the peptide tag is 6-His, thioredoxin, hemaglutinin, GST, or OmpA signal sequence tag.

33. The fusion protein of claim 29, wherein the heterologous peptide is an agent that promotes polypeptide oligomerization.

34. The fusion protein of claim 29, wherein the agent is a leucine zipper.

43. A composition comprising the polypeptide molecule of claim 27 and a carrier.

44. A composition comprising the polypeptide molecule of claim 28 and a carrier.

68. The composition of claim 1 further comprising a carrier.

69. The composition of claim 1 wherein the substantially purified thermostable Gux I peptide is further defined as comprising a heterologous peptide or protein.

70. The composition of claim 69 wherein the heterologous peptide or protein comprises an immunoglobulin.

71. The composition of claim 69 wherein the heterologuos peptide comprises a histidine tag.

72. The composition of claim 69 wherein the heterologus peptide comprises a leucine zipper.

73. The composition of claim 69 wherein the heterologous peptide comprises a fusion protein.